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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/541,800

07/08/2005

Yoshihiro Yasui

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EXAMINER

CADUGAN, ERICA E

ART UNIT

PAPER NUMBER

3722

MAIL DATE

DELIVERY MODE

03/18/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/541,800	<b>Applicant(s)</b> YASUI, YOSHIHIRO	
	<b>Examiner</b> Erica E. Cadugan	<b>Art Unit</b> 3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 15-23,37 and 38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-23,37 and 38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/8/05</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of the invention of Group I without traverse in the reply filed on January 10, 2008 is acknowledged. In light of the cancellation of the claims of groups II and IV, and the amendment to claims 21-23, Examiner will consider and examine all of the pending claims 15-23, (as well as new claims) 37, and 38.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 15-23, 37, and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 15-23, 37, and 38 are replete with instances that do not particularly point out and distinctly claim the subject matter of applicant's invention. Examples of these instances are listed below, but these instances are not limited to the listed examples. Applicant is advised to closely review the claims for other occurrences.

Regarding claims 15 (see line 3), the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

In claim 15, lines 13-14, the limitation "stopping the element carrier plate in said at least one operation performing apparatus **of said portion**" is unclear. Note that in lines 5-7, the claim defines "at least one exchangeable constituent element of at least one operation performing

apparatus” as “at least a portion of the plurality of operation performing apparatuses”, i.e., the claimed exchangeable constituent element is the claimed “portion”. It is thus unclear how or in what regard the “at least one operation performing apparatus” is “of said portion”, as claimed in lines 13-14, since, as already set forth in lines 5-7, the “portion” is the “at least one exchangeable constituent element” of the “at least one operation performing apparatus”. **Similar issues with regard to a lack of clarity occur throughout the claims related to the “portion” limitations.**

There are several positively recited limitations that lack sufficient antecedent bases in the claims. A few examples of this are: “said at least one first constituent element held by at least one apparatus-side element-holding portion...” in claim 15, lines 14-15 (note that the claim did not previously set forth any such constituent element that was “held by at least one apparatus-side element-holding portion”). This is not meant to be an all-inclusive list of such occurrences. Applicant is required to review the claims and correct any other such occurrences of limitations lacking sufficient antecedent basis.

In claim 22, lines 9-10, it is unclear as claimed what is meant by “owing to the function”, i.e., the function of what? Also, what action, item, or element in any regard “owes” to any function?

In claim 38, last four lines, it appears that there may be a verb missing to indicate what action is occurring “based on the respective identification codes stored in the element-code memory and the respective identification codes read by the reading device...” as claimed. Thus, the scope of the claim is unclear.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 15-23, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,692,292 to Asai et al. in view of JP-4-123493 (hereinafter JP '493).

Asai et al. teaches a transfer-type circuit board fabricating system in the form of a "line" having a plurality of working modules or "operation performing apparatuses" 10, 12, 14, 16, 18, and 20 that each perform "a respective predetermined operation related to a circuit board substrate" in the form of a printed circuit board or PCB 24. The PCB 24 is conveyed through the modules via conveyor device 26 (see Figure 2, for example). Component supply device 60 provides components to be placed on the PCB by placer heads 96 of various ones of the modules (see Figure 2, for example, as well as at least col. 11, line 34 through col. 12, line 35 and col. 14, line 40 through col. 15, line 37, for example).

Regarding at least claims 17-20 and 23, for example, note that the placer heads 96 utilize vacuum "nozzles" to pick up and place the electronic components on the PCB's (see at least col. 14, lines 21-50 and particularly lines 47-50).

Additionally, specifically regarding claim 20, it is noted that Asai explicitly described the various working modules 12, 14, 16, 18 are described as having the same dimensions in the X direction, and having at least some identical portions (see at least col. 19, lines 19-34, and col. 21, lines 39-53, for example). Note that, as broadly claimed, the identical portions of the

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members 12, 14, 16, 18 that are described can themselves be considered the claimed “plurality of modules” that “have respective identical constructions and which are arranged adjacent to each other...” (i.e., considering the identical portions to be identical “modules” as broadly claimed).

Further note, re at least claim 21, that the heads of the various operation-performing apparatuses can themselves be considered the claimed “element stocker”, as broadly claimed, noting that it/they hold the nozzle(s) as claimed.

While Asai does teach that the system can be used to produce different PCB's, and also teaches that different modules can be used (see col. 28, lines 38-46, for example), Asai is silent about any exchange of “exchangeable constituent elements” of the modules, and thus does not explicitly teach the steps of “causing an element carrier plate to hold said at least one second constituent element such that said at least one second constituent element is detachable from the element carrier plate, causing the substrate conveyor to convey the element carrier plate from one of opposite ends of the operation-performing-apparatus line toward an other end thereof, stopping the element carrier plate in said at least one operation performing apparatus of said portion, and automatically exchanging said at least one first constituent element held by at least one apparatus-side element-holding portion of said at least one operation performing apparatus, with said at least one second constituent element held by the element carrier plate” as set forth in independent claim 15.

However, JP '493 teaches an arrangement wherein an “element carrier plate” 10 detachably holds “constituent elements” or nozzles 8 to be exchanged with a nozzle 8 of a placer head 1 that is used to place electronic parts or components P on a board substrate 4. The

“element carrier plate” is conveyed along a line by the same conveyor 9 that conveys the board substrate 4 into the vicinity of the placer head 1 such that the automatic exchange of nozzles between head 1 and “element carrier plate” 10 can occur. See Figures 1-3 as well as the English Abstract provided by the Applicant (additionally, Examiner orally consulted a Japanese-language translator who indicated the following:

Reference number 1 refers to a transfer head mounted on XY tables 2 and 3. The head moves in the XY directions, suctions electronic part P of parts feeder 7 to nozzle 8, and transfers it to substrate 4 to be mounted on it. Reference number 5 refers to a positioning element.)

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the operation performing-apparatus line taught by Asai with the “element carrier plate”, that detachably holds replacement nozzles for the placer head, along the same conveyor (26 of Asai) that conveys the board substrate through the operation performing line, as taught by JP '493, for the purpose of enabling the nozzles of the placer head of Asai's device in the desired operation performing apparatuses of Asai's production line to be automatically exchanged (e.g., when damaged or worn) in a simple manner, thus further automating the process, as would be evident and readily understood from JP '493's invention.

Note: the provision of JP '493's invention to Asai as described would result in the operation performing apparatus where the member [which can be considered the “element carrier plate” or “element stocker” (specifically re claims 22-23, for example), as broadly claimed] 10 of JP '493 is located in an operation performing apparatus of Asai, and that the element 10 holds a plurality of replaceable nozzles thereon as described previously.

6. Claims 37-38, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,692,292 to Asai et al. in view of JP-4-123493 (hereinafter JP

‘493) as applied to at least claims 15 and 21 above, and further in view of JP-11-138367-A (hereinafter JP ‘367).

Asai in view of JP ‘493 teaches all aspects of the present invention as set forth in the above rejection based thereon. Additionally, it is noted that Asai explicitly teaches the use of controllers for the various apparatuses 12, 14, 16, etc., such as controller 62 for the first working module which is principally constituted by a computer 268 which incorporates memory therein (see at least col. 18, lines 62-65, for example).

However, Asai (nor JP ‘493) does not explicitly teach that the memory has stored therein respective identification codes of any exchangeable constituent elements (re claim 38), nor does Asai (in view of JP ‘493) teach that any of the exchangeable constituent elements include an “identification-code recording portion where an identification code which identifies said each one constituent element from an other of said at least one first constituent element and said at least one constituent element is recorded” (re claims 37-38), nor does Asai (in view of JP 493) teach any sort of “reading device which reads the respective identification codes...” (re claims 37-38).

However, JP ‘367 teaches a system wherein nozzles 7 replaceably held by a head (Figure 2, English abstract provided by Applicant) are automatically exchanged for other nozzles 7 located in portions 11a of a supporter 11 (see Figures 2 and 5, for example). The nozzles 7 include indicators or unique “identification codes” 20 that are “read” by at least a CCD camera (see at least paragraphs 0026-0031 of the machine translation provided by Applicant, for example), and the read information is sent to a “memory” (see at least paragraphs 0026-0031 of

the machine translation provided by Applicant, for example, as well as the English abstract provided by Applicant, for example).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the invention taught by Asai in view of JP '493 with the identification codes, readers, and memory thereof taught by JP '367 for the purpose of further automating the nozzle exchange process by enabling the machine to determine which is the proper nozzle, as well as for the purpose of reducing human or operator error (i.e., by enabling the machine to automatically determine which is the proper nozzle rather than requiring that the operator do so), as would both be benefits readily understood by and apparent to one having ordinary skill in the art.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E. Cadugan whose telephone number is (571) 272-4474. The examiner can normally be reached on M-F, 6:30 a.m. to 4:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica S. Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erica E Cadugan/  
Primary Examiner  
Art Unit 3722

eec  
March 11, 2008